

Claims

1. Flat flex cable, or FFC, in particular for use in vehicles, wherein said cable contains at least two electric conductors (2) that are embedded in at least one insulating layer (3) of a plastic material, characterized by the fact that a circuit layout (6) is applied on the surface of the flat flex cable (1) and connected to at least one conductor (2) of the cable, and by the fact that at least one electric and/or electronic component (11) is arranged on the circuit layout (6).

2. Flat flex cable according to Claim 1, characterized by the fact that the circuit layout (6) consists of a copper foil with low transverse strength.

3. Flat flex cable according to Claim 1 or 2, characterized by the fact that the electronic components (11) are connected to the circuit layout (6) by means of conductive bonding.

4. Flat flex cable according to one of Claims 1-3, characterized by the fact that the electronic components (11) are covered with housing shells (13) or by means of selective casting (15) or a protective lacquer, for example, consisting of a hardenable polymer system.

5. Flat flex cable according to one of the preceding claims, characterized by the fact that the copper foil has a so-called cauliflower structure and/or is provided with a black oxide coating on the side that faces the flat flex cable.

6. Flat flex cable according to one of the preceding claims, characterized by the fact that the electrically conductive connection between the circuit layout (6,9) and the at least one strip conductor (2) of the flat conductor is produced by means of resistance welding.

7. Method for manufacturing a flat flex cable according to one of Claims 1-6, characterized by the fact that

at least one window-like opening (4,14) is produced in the surface of the flat conductor, namely in the thermoplastic insulating layer (3), by the fact that

a circuit layout (6,9) in the form of a metallic strip conductor pattern that preferably consists of copper is stamped on the thermoplastic insulating layer (3), by the fact that

the circuit layout (6,9) is fitted with electric and/or electronic components (11), and by the fact that

the circuit layout (6,9) is connected in an electrically conductive fashion to at least one conductor (2) of the flat flex cable (1).

8. Method according to Claim 7, characterized by the fact that the window-like openings (4,14) are produced by removing the thermoplastic insulating layer (3) with a laser.

5 9. Method according to Claim 7 or 8, characterized by the fact that the circuit layout (6,9) at least partially covers at least one window-like opening (4), and by the fact that a direct electrically conductive connection is produced between the circuit layout and the conductor (2) of the flat flex cable.

10 10. Method according to Claim 9, characterized by the fact that the window-like opening (4,14) is provided on both sides (7,17) of the flat flex cable (1), and by the fact that the electrically conductive connection is produced by means of resistance welding.

15 11. Method according to Claim 7 or 8, characterized by the fact that the circuit layout is arranged adjacent to the window opening, and by the fact that the electric connection between the circuit layout and the conductor of the flat conductor is produced with wire bonding techniques.

20 12. Method according to one of Claims 7-11, characterized by the fact that the region of the flat flex cable which contains the circuit layout (6,9) with the components (11) is covered with a housing (13) or a casting compound (15) or a coat of protective lacquer.